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Chairless Chair for improved ergonomics in Audi's production plants

- **Carbon-fiber construction supports employees in assembly work**
- **Audi Board of Management Member for Production Prof. Dr. Hubert Waltl: "Ergonomically designed working environment for more well-being and better health"**
- **Three prototypes in use on assembly lines in Neckarsulm**

Ingolstadt/Neckarsulm, February 26, 2015 – The health of its employees has top priority for Audi. For this reason, at its plant in Neckarsulm, the company is testing a new technology that eases many assembly activities: the so-called "chairless chair." This high-tech carbon-fiber construction allows employees to sit without a chair. At the same time, it improves their posture and reduces the strain on their legs.

"Audi has played a leading role in the field of ergonomics for a long time now. The chairless chair is one of many projects that we have implemented in our production processes in recent years. It helps us to enhance our employees' well-being and maintain their health over the long term. At the same time, an ergonomically optimized working environment promotes more productivity and even better quality," stated Audi's Board of Management Member for Production, Prof. Dr. Hubert Waltl.

As the employees' health will be improved by the use of the chairless chair, the Works Council is also in favor of the project. "We must utilize our technological leadership also for the well-being of the workforce. Because technologies that relieve people of stress are examples of how the future has to be shaped for the good of the employees," explained the Chairman of Audi's General Works Council, Peter Mosch.

The chairless chair, which Audi has further developed together with a Swiss start-up company, is an exoskeleton that is worn on the back of the legs. It is fastened with belts to the hips, knees and ankles. Two leather-covered surfaces support the



buttocks and thighs while two struts made of carbon-fiber-reinforced plastic (CFRP) adapt to the contours of the leg. They are jointed behind the knee and can be hydraulically adjusted to the wearer's body size and the desired sitting position. Body weight is transferred into the floor through these adjustable elements. The chairless chair itself weighs just 2.4 kilograms. Dr. Stephan Weiler, the doctor responsible for ergonomic workplace design in Audi's health department: "The chairless chair is a clear demonstration that Audi places priority on attractive and well-designed workplaces. This construction reduces the stress and strain on our employees' knees and ankles in an ideal manner."

While working, employees wear the chairless chair like a second pair of legs to provide support whenever needed. For many assembly operations, it allows employees to sit in an ergonomically favorable position instead of standing – even with short working intervals. At the same time, this high-tech supporting structure improves posture and reduces strain on the legs. Chairs and stools, which are currently used in some assembly operations as temporary aids, become unnecessary. At the same time, Audi hopes that use of the exoskeleton will reduce employee absenteeism for physical reasons. "With the use of the chairless chair, we are continuously improving ergonomics in assembly operations. We also anticipate new applications for colleagues with reduced physical capabilities," stated Dr. Mathias Keil, Head of Industrial Engineering Methods at AUDI AG.

Starting this week, Audi employees are gaining experience with three pilot prototypes of the chairless chair on A4* and A6* assembly lines at the Neckarsulm plant – with cockpit pre-assembly for example. Until now, the employees there worked only while standing. They now have significantly less physical stress due to the supportive carbon-fiber device, which allows them to alternate between sitting and standing while working. Audi will start a test phase also at the Ingolstadt plant in May. After that, the company will deploy the chairless chair in series production.

The pilot project is being supported by an interdisciplinary team and is part of the area of activity under the heading of "workplace of the future" within the company's ergonomics strategy: With "We for us. Active into the future," Audi is reacting to current and coming challenges brought by the transformation of working life.

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*The collective fuel consumption of all models named above and available on the German market can be found in the list provided at the end of this MediaInfo.



Fuel consumption of the models named above:

Audi A4:

Fuel consumption combined in l/100 km: 10.7-4.0;

CO₂ emissions combined in g/km: 249-104

Audi A6:

Fuel consumption combined in l/100 km: 9.6-4.2;

CO₂ emissions combined in g/km: 224-109

The Audi Group delivered approximately 1,741,100 cars of the Audi brand to customers in 2014. In 2013, the company reported revenue of €49.9 billion and an operating profit of €5.03 billion. The company operates globally in more than 100 markets and has production facilities in Ingolstadt and Neckarsulm (Germany), Győr (Hungary), Brussels (Belgium), Bratislava (Slovakia), Martorell (Spain), Kaluga (Russia), Aurangabad (India), Changchun (China) and Jakarta (Indonesia). Since the end of 2013, the brand with the Four Rings has also been producing cars in Foshan (China). As of mid-2015, Audi will operate a production facility in São José dos Pinhais (Brazil), followed by San José Chiapa (Mexico) in 2016. Wholly owned subsidiaries of AUDI AG include quattro GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese, Italy) and Ducati Motor Holding S.p.A. (Bologna, Italy), the sports motorcycle manufacturer. The company currently employs approximately 80,000 people worldwide, thereof approximately 55,800 in Germany. Total investment of around €24 billion is planned from 2015 to 2019 – primarily in new products and sustainable technologies. Audi is committed to its corporate responsibility and has anchored the principle of sustainability for its products and processes in its strategy. The long-term goal is CO₂-neutral mobility.